

THE POLYPLACOPHORA OF KING ISLAND, BASS STRAIT, WITH
DESCRIPTION OF A NEW SUBSPECIES.

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Plate viii. Figs. 1-6.

Foreword.—Both W. Lewis May, of Tasmania, and I had for several years contemplated a visit to King Island with a view to the examination of the Chiton fauna, as we believed that no one had collected Chitons there since the visit of Peron and Lesueur in November and December, 1802. On 3rd December, 1922, May wrote informing me that he had been away from home for a fortnight on a preliminary trip of investigation to King Island. With the letter he sent a number of Chitons he had collected during his visit; of this number he thought two were new species, and asked me to describe them. By a curious coincidence Hull was just about the same time on his way to the island, he having informed me under date 25th November, 1922, that he was leaving Sydney on the 28th idem to collect Chitons on King Island. He actually reached the island barely a fortnight after May had left it. Thus, after the lapse of a hundred and twenty years, two workers, quite independently of one another, planned their respective expeditions only a week or two apart. The following paper is a record of the results, so far as concerns the *Polyplacophora*, of these two expeditions. As "L'île King" is given as the type locality of several of the Chitons described by Blainville (1824) and others, these results should be of interest to all workers. May collected at Currie Harbour (middle west coast), Surprise Bay (south-west), Fraser or Sea Elephant Bay (middle east coast), and Grassy Creek (south-east coast). Hull, who was accompanied by Gerald Lewers, a keen young collector, worked for several days from Currie Harbour south to Badger Box Creek, spent one day at Yellow Rock River, working towards Whistler Point (north-west coast), and three days at Fraser Bluff. The material and notes of both collectors are amalgamated in this paper. E. ASHBY.

INTRODUCTION.

King Island lies almost midway between the north-western coast of Tasmania and Cape Otway, Victoria, and from its position one might reasonably expect its Chiton fauna to be a rich one, comprising representatives of the southern Australian and Tasmanian faunas. The island is about 40 miles in length from north to south, and 16 miles in width, having an area of approximately 400 square miles. No examples of the following genera were found:—*Lepidopleurus*, *Callochiton*, *Rhyssoplax* or *Lorica*. It might be claimed that the limitations of time and tide under which the collectors laboured account for their failure to secure representatives of the genera mentioned, but the period covered by their operations embraced both full and new moon spring tides, in addition to which some dredging operations were carried out in ten fathoms off Fraser Bluff. It was noted that both species and individuals were most numerous about the limits of the neap low tides, and as the depth of water increased the Chiton fauna rapidly decreased, until in three or four feet at low water, where on the mainland one would expect to find *Rhyssoplax*, *Lorica*, etc., the stones examined were almost invariably bare, except for an occasional specimen of the ubiquitous *Heterozona subviridis*, or *Cryptoplax striatus*. The entire absence of *Sypharochiton pellis-serpentis*, which is such a common shallow water species on the Tasmanian coast; the presence of *Ischnochiton virgatus*, and the fact that all other recorded species are common to southern Australia and Tasmania, suggest that the Chiton fauna of King Island is more nearly related to that of the South

eroded. One of us possesses three shells from Sulphur Creek, near Penguin, north-west Tasmania, that are similar in character. It therefore seems likely that the deeply sculptured insular form, *I. atkinsoni* Iredale & May, overlaps the subspecies on the north-west coast of Tasmania, but does not extend to King Island.

ISCHNOCHITON IREDALEI KINGENSIS, n. subsp.

Plate viii. Figs. 1-4.

Ischnochiton iredalei, Dupuis, Ex. Bull. Mus. Hist. Nat., 1918, No. 7.

Ischnochiton lineolatus, Blain, of Iredale & May, Proc. Mal. Soc., vol. xii., pts. ii. and iii., Nov. 1916 = *I. contractus*, Reeve, of Filsbry, Auct.

General appearance.—Dingy white flecked and mottled with olive, in large specimens these olivaceous markings become streaks and dashes. The streaking or flecking is very pronounced in the dorsal area where it is brownish olive. The shape is elliptical, almost evenly rounded at either end. The jugum is a little more raised and less rounded than in *iredalei*, *sensu stricto*.

Anterior valve.—Apex raised, slope straight, not curved as in the shells from the mainland coast. The sculpture consists of closely packed, well defined, radial ribs; while these are sub-granulose they are not so granulose as shells of *I. iredalei*, *sensu stricto*, neither are they broken by concentric grooving as in that shell. Interior white, slits 11.

Posterior valve.—The posterior portion is decorated with strongly granulose, radial ribs, in many cases consisting of strings of rounded heads; this portion of valve is separated from the anterior part by a raised, diagonal, broken rib. The mucro is median. The anterior portion of this valve is sculptured with well defined, diagonal ribs, produced forward towards the jugum and slightly pectinated; slits 14.

Median valve.—Lateral areas raised, decorated with five or more radial ribs, somewhat irregular, and formed of rows of raised and rounded granules; the posterior margin coarsely serrate with rounded teeth. The pleural area is deeply and longitudinally grooved and ribbed, the ribs directed forward diagonally towards the dorsal area, practically covering the whole of this area; in this respect differing from the mainland shell. The dorsal area is broadly wedge-shaped, and is covered with ribs diverging each side of the jugum and thereby forming a V, and crossing the ends of the diagonal ribs of the pleural area. This area is coloured brownish olive, interior white, eaves well defined, teeth smooth, slits 1/1.

Girdle.—Is similar in width and character to *I. iredalei*, *sensu stricto*, banded, and clothed with similarly grooved scales.

Measurement.—Type 24 x 12½ mm., but adult and worn specimens up to 47 mm. in length were collected. Those in which the sculpture is badly worn can hardly be separated from *I. iredalei*, *sensu stricto*.

Habitat.—May took two specimens at "Grassy" and Hull a fairly long series at Fraser Bay. We have with May's consent discarded his shell and taken a larger shell from Hull's series as type, so that the type locality will be Fraser Bay. The type while now in Ashby's collection is later on to be presented to the South Australian Museum.

In conclusion.—The markings of this shell are in character like those of very juvenile *I. iredalei* from the South Australian coast, but in this sub-species this marking seems to be consistently retained into the fully adult stage. The King Island shell is less rounded in the jugum, showing a dorsal ridge. The whole sculpture in unworn shells is beautifully sharp and clear-cut, and the diagonal longitudinal ribs of the pleural area are continued right up to the dorsal area, in this respect differing from the mainland shells. While there is little difficulty in

separating these King Island shells from those from the mainland coast, there is considerable difficulty in separating them from the forms found at Sulphur Creek, in north west Tasmania. Ashby has a fine series from that locality, which differ greatly in colour and markings, and many of them in sculpture from typical *I. iredalei*, whereas that species varies very little on the Australian coast. We think all the shells from King Island are referable to this sub-species, and that probably some of the north-west Tasmanian ones are as well. It looks as if a well defined geographic race has been developed in the waters of King Island, but in Tasmania proper it overlaps with *I. iredalei*, *sensu stricto*.

ISCHNOCHITON VIRGATUS.

Ischnochiton virgatus Reeve. Conch. Icon. t. 28, f. 192, 1848.

This shell was rare on the west coast, but numerous specimens were taken at Fraser Bay, including a remarkable pinkish coloured juvenile. Four specimens were taken at Grassy Creek. The adult shells were of the beautifully decorated, blue freckled form occurring commonly on the Victorian coast, and differing in this respect from the common form found in King George Sound, Western Australia. May had not previously taken this species within the Tasmanian region, but the late R. N. Atkinson collected it at Clarke Island, Bass Strait (north east Tasmania).

ISCHNOCHITON (HAPLOPLAX) SMARAGDINUS RESPLENDENS.

Lophyrus smaragdinus Angas, P.Z.S., p. 115, t. 13, f. 28, 1867, dominant form.
Ischnochiton resplendens Bednall & Matthews, Proc. Mal. Soc., vol. vii., pt. 2, 1906.

Not common; eastern coast only. Most specimens were of the dark form, common on the north-west coast of Tasmania, but one taken at Fraser Bay has the irregular broad dorsal pattern with light coloured margin of *I. resplendens*, although it shows none of the delicate tracery of Bednall and Matthews's type.

ISCHNOCHITON (HETEROZONA) SUBVIRIDIS.

Heterozona subviridis Iredale & May, Proc. Mal. Soc., vol. xii., pts. 2 and 3, 1916.

This species was found in extraordinary abundance in each locality visited; as many as fifty individuals being counted on the under side and edges of one stone, 6 x 8 inches. For the most part eroded dorsally they nevertheless exhibited a brilliant colouring, principally in shades of cobalt, pale to dark, with scattered examples in cream, brownish, and dark purple. May expressed surprise, assuming the conditions to have been the same in 1802, that the French naturalists had not taken or recorded this species. As a matter of fact, they appear to have taken specimens of this shell. On examining Blainville's types in the Paris Museum one of us (Trans. Roy. Soc. of S. Austr., vol. xlvii., p. 573, 1922) noted that the type of *I. lineolatus* is undoubtedly a fine well-marked specimen of the Chiton we used to know as *I. crispus* Reeve. On other cards in the same Museum are further specimens under the same name (*lineolatus*) collected at "Ile King" by the same naturalists, some of which are probably half-grown examples of *Heterozona subviridis*. Further, one of the specimens collected by Peron and Lesueur at "Ile King," formerly belonging to M. Paul Dupuis, and presented by him to the senior author, is undoubtedly *subviridis*. It is reasonable, therefore, to conclude that the French naturalists collected both species, but those of the species under review being half-grown, dingy, inconspicuous shells, Blainville selected the larger, better-looking shell for his type of *Chiton lineolatus*.

ISCHNORADSLA AUSTRALIS EVANIDA.

Chiton evanidus Sowerby, Mag. Nat. Hist., vol. iv., p. 291, 1840.

Ischnoradsia novae-hollandiae, Reeve, of Iredale & May, Proc. Mal. Soc., vol. xii., pts. 2 and 3, 1916, p. 112.

Ischnoradsia evanida, Sow. of Ashby, Trans. Roy. Soc. of S. Austr., vol. xlii., 1918.

This species was not common on the west coast, but fairly numerous on the east coast. May's comment is that it showed very little longitudinal striae, but an examination of the material collected in all localities discloses some mature specimens showing the longitudinal striae, while the majority are without this sculpture.

CALLISTOCHITON ANTIQUS MERIDIONALIS.

Callistochiton antiquus meridionalis Ashby, Trans. Roy. Soc. of S. Austr., vol. xliii., p. 400, 1920, vol. xlii., 1920.

One anterior valve of this species was obtained at Currie Harbour, and three living shells at Fraser Bay.

PLAXIPHORA ALBIDA.

Plate viii., Figs. 5, 6.

Chiton albidus, Bl. Dict. Sc. Nat., pl. 74, vol. xxxvi., p. 547, 1825.

Chiton costatus, Bl. l.c. p. 548—Ashby, Trans. Roy. Soc. of S. Austr., vol. xlii., 1922.

Chiton glaucus Quoy & Gaimard, Zool. Astrolabe, vol. iii., 1835, p. 376.

May writes: "Both species (the smooth and the wrinkled shells) fairly numerous on exposed rocks at Grassy Creek, also a few at Currie." Hull obtained one specimen only of the smooth shell, and many of the wrinkled shell, at each locality visited.

Blainville's type of *P. albida* was collected by Peron et Lesueur at "Île King." It is an eroded and bleached shell with evidence of wrinkling on one valve only, the wrinkled shells from King Island correspond with the type. The range of this form extends well round the southern and western coasts of Australia as far north as Dongara. Should workers wish to separate them then by strict rules, Quoy and Gaimard's name is preoccupied by *Chiton glaucus*, of Gray, now *Amaurochiton glaucus*, Gray, a New Zealand shell, in which case we shall have to adopt the name *Plaxiphora tasmanica*, Thiele = *Chiton glaucus* Q. and G. Whether this is only a smooth variety of *P. albida*, Bl. or a distinct species must be left to future investigation.

Note by Edwin Ashby.—The writer has collected *Plaxiphora* of the wrinkled variety from New South Wales, round southern Australia and Tasmania to as far north as Dongara in Western Australia. He has also collected in most of these localities the smooth form called *Chiton glaucus* by Quoy and Gaimard, and has specimens of this smooth form from as far north as Burleigh Head, Queensland. He considers the smooth shell from King Island conspecific with the latter.

The series in his collection appears to cover every stage from the strongly sculptured specimen with two granulose, diagonal ribs, called *conspersa*, by Adams and Angas, to the smooth form with nongranulose diagonal rib or no rib at all, named *glaucus* by Quoy and Gaimard. In conversation with Mr. Tom Iredale recently in London, he (Mr. Iredale) concurred with the writer in the conclusion that the question as to whether this series represents one very variable species, or more than one, is still undetermined.

ACANTHOCHITON SUEURI.

Chiton sueurii Blainville, Dict. Sci. Nat., vol. xxxvi., p. 553.

This was one of the very common species, found on both west and east coasts. Some finely preserved specimens of large size were collected, but the majority observed were much eroded.

ACANTHOCHITON GRANOSTRIATUS.

Acanthochites granostriatus Pilsbry, Nautilus, vol. vii., p. 119, 1894.

Two typical specimens were taken at Fraser Bay. The species was not seen elsewhere, and may be recorded as "rare."

ACANTHOCHITON VARIABILIS.

Hanleya variabilis Adams & Angas, P.Z.S., 1864, p. 194.

At Grassy Creek May collected a remarkable variety of this species. It is 8½ mm. in length, ground colour darkish, decorated with opalescent granules which completely coalesce across the pleural areas, forming ribs which are bright blue in colour. The wide interspaces between the ribs being dark coloured show up the blue ribbing and opalescent granules to great advantage. The whole of the sculpture of valve iii. is bright blue.

ACANTHOCHITON KIMBERI.

Acanthochites kimberi Torr., Trans. Roy. Soc. of S. Austr., vol. xxxvi., p. 167, 1912.

Two specimens of this by no means common shell were taken at Fraser Bay. They are in good condition and typical examples, the larger measuring 8½ x 4½ mm.

ACANTHOCHITON COSTATUS.

Acanthochites costatus Adams & Angas, P.Z.S., 1864, p. 194.

One specimen only, 19 mm. in length, was taken at Fraser Bay. The species was not met with elsewhere on the island.

CRYPTOPLAX STRIATUS.

Chitonellus striatus Lamarck, Anim. Sans. Vert., t. vi., p. 317, 1819.

Cryptoplax striatus Ashby, Trans. Roy. Soc. of S. Austr., vol. xli., p. 577, 1922.

This was a very common shell indeed on the west coast, but not so common on the east coast. A large series was obtained, and it may be noted that the King Island shells differ from typical South Australian shells in that the spicules on the girdle are shorter and more widely spaced, although about the same thickness and similarly curved towards the point. The granulose character of the sculpture of the juvenile shells is apparently changed at a little earlier stage of growth into the adult coarse, irregular, longitudinal ribbing, characteristic of this species. It is noted that a great many of the spicules are broken off, thereby increasing the appearance of wide spacing. We do not consider these slight differences sufficient to warrant our giving even subspecific rank to the King Island specimens. It is worthy of notice that the largest shell collected shows evidence of spacing between valves 5, 6 and 7; this feature is characteristic in adult specimens of *C. striatus*. Mawle has collected specimens of *Cryptoplax* at Port Arthur, Tasmania, that vary considerably, and some of them correspond with those from King Island.

EXPLANATION OF PLATE viii.

Fig. 1. *Ischnochiton iredalei kingensis*. Entire shell, from photograph by E. Ashby.

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|------|----------------------------|---|---------------------------------------|----------------------------------|
| " 2. | do | do. | Anterior valve. | } Drawn by
Joyce K.
Allan. |
| " 3. | do | do, | Posterior valve. | |
| " 4. | do | do. | one-half median valve. | |
| " 5. | <i>Plaxiphora albida</i> , | one half median valve (wrinkled shell). | | |
| " 6. | do | do. | one half median valve (smooth shell). | |
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